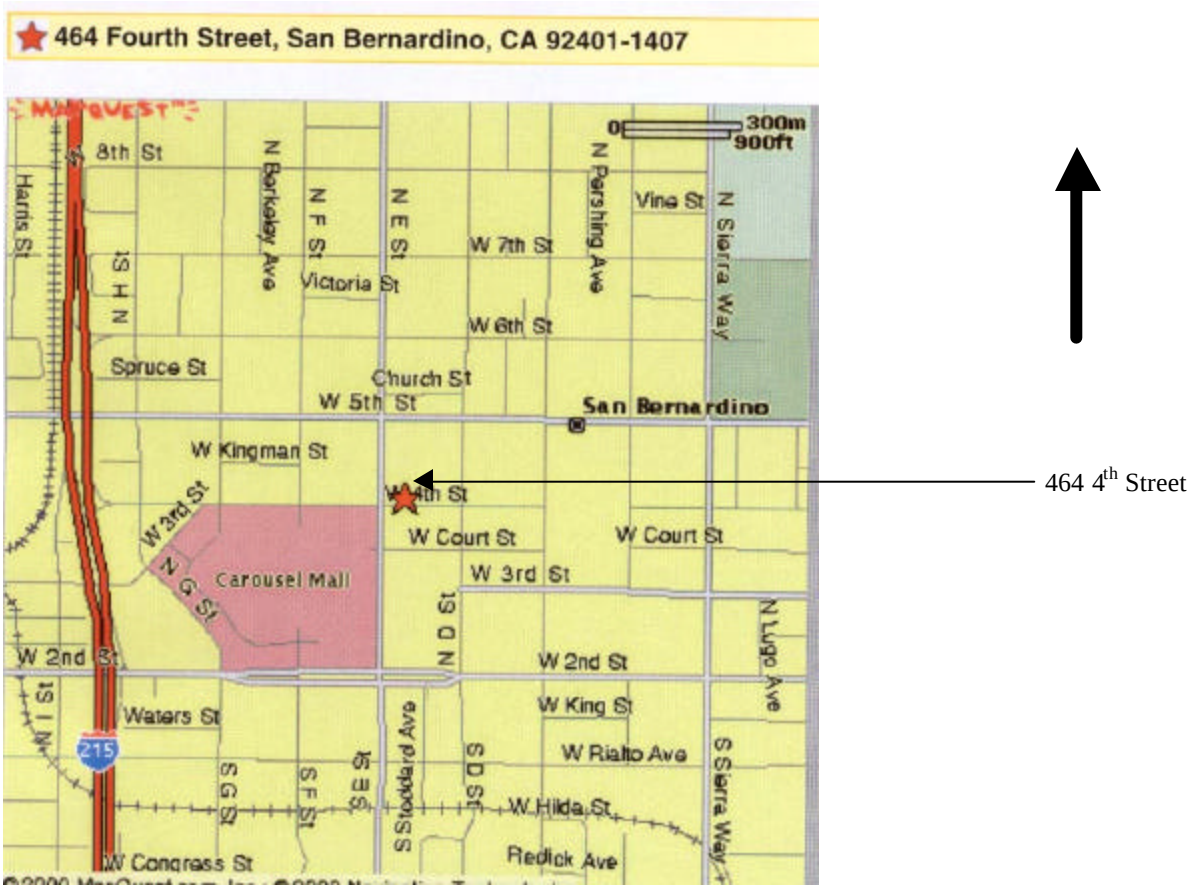
LOCATION MAP

464 Fourth Street, Room 805, San Bernardino, CA 92401



PARKING:

Parking access is from Stoddard Street. Stoddard Street is west of E Street, between 4th & 5th Street.

From EB 4th Street turn left and from EB 5th Street turns right.

AGENDA
CALIFORNIA TRAFFIC CONTROL DEVICES COMMITTEE (CTCDC)
January 31, 2002 MEETING
464 West 4th Street, San Bernardino, CA 92402
TIME 9:30 AM

ORGANIZATION ITEMS

Estimated Time

1. INTRODUCTION 9:30

2. APPROVAL OF MINUTES (September 27, 2001 MEETING) 9:40

3. PUBLIC COMMENTS 9:45

At this time, members of the public may comment on any item not appearing on the agenda. Matters presented under this item cannot be discussed or acted upon by the Committee at this time. For items appearing on the agenda, the public is invited to make comments at the time the item is considered by the Committee. Any person addressing the Committee will be limited to a maximum of five (5) minutes so that all interested parties, have an opportunity to speak. At all times, please use the microphone and state your name , address, and business or organization for the record.

AGENDA ITEMS

4. PUBLIC HEARING 9:50

Prior to adopting rules and regulations prescribing uniform standards and specifications for all official traffic control devices placed pursuant to Section 21400 of the California Vehicle Code (CVC), Caltrans is required to consult with local agencies and hold public hearings.

00-4	USE OF RAISED PAVEMENT MARKERS IN A TRANSVERSE PATTERN (Gerry Meis will update the Committee)	(Continued) (Larsen)	10:00
01-5	ACCESSIBLE PEDESTRIAN SIGNALS (Proposal to adopt MUTCD language into the Traffic Manual)	(Continued) (Fisher)	10:30
02-1	PEDESTRIAN SIGNALS (Proposal to revise Section 9-03.20 of TM)	(Introduction) (Meis)	11:30

5. REQUEST FOR EXPERIMENATION

02-2	PEDESTRIAN COUNTDOWN SIGNAL HEADS (City of SF, to expand experiment City Wide)	(Introduction) (Banks)	12:00
02-3	PEDESTRIAN COUNTDOWN SIGNAL HEADS (Experiment request by the City of Berkeley)	(Introduction) (Tanda)	12:30

6. INFORMATIONAL ITEMS

99-11	MUTCD ADOPTION BY CALTRANS (Update by Caltrans)		13:00

01-9	TEMPORARY OR PORTABLE SPEED DISPLAY SIGN (Update by Gerry Meis)	13:30

7. NEXT MEETING

8. ADJOURN

ITEM UNDER EXPERIMENTATION

99-10 TACTILE PEDESTRIAN INDICATORS (Folkers)
(Experiment Agency-City of Los Angeles) (Fisher)
Status: No update received.

99-12 SPEED STRIPING FOR SMART CROSSWALKS (Meis)
(Experiment Agency-Caltrans D7)
Status: No update received.

99-13 ILLUMINATED PAVEMENT MARKERS ON MEDIAN BARRIERS (Meis)
(Experiment Agency-Caltrans D7)
Status: No update received.

99-18 GROUND MOUNTED LED LIGHTS ON STOP BARS (Meis)
(Experiment Agency-City of Anaheim)
Status: The City of Anaheim submitted a fourth progress report dated June 2001. The City of Anaheim will collect further data and submit to CTCDC.

00-1 BICYCLE PAVEMENT MARKING (Banks)
(Experiment Agency-City of San Francisco)
Status: No new information to report at this time. The RFP scope of work for consultant work on the study is nearing completion.

00-3 JAKE BRAKE SIGN (Meis)
(Experiment Agency-City of Auburn)
Status: The signs will be installed on June 1, 2001 and post study will be conducted during the summer of 2002.

00-6 PEDESTRIAN COUNTDOWN SIGNAL HEADS (Banks)
(Experiment Agency-City of San Francisco)
Status: Report was sent to members by e-mail.

00-8 PEDESTRIAN COUNTDOWN SIGNAL HEAD (Tanda)
(Experiment Agency-City of San Jose)
Status: San Jose State University Foundation has assisted the City of San Jose in developing a testing procedure. Pre-installation data (including pedestrian and motorist compliance/behavior/conflicts) has been collected for the five locations. Pedestrian countdown signals are on order.

00-9 PEDESTRIAN COUNTDOWN SIGNAL HEAD (Tanda)
(Experiment Agency-City of Stockton)
Status: No update received.

01-3 PEDESTRIAN COUNTDOWN SIGNAL HEADS (Fisher)
(Experiment request by the City of Fountain Valley)
Status: The City is wrapping this up and a final report will be submitted to the Committee.

01-4 TACTILE PEDESTRIAN INDICATORE WITH AUDIBLE INFORMATION (Tanda)
(Experiment request by the City of Santa Cruz)
Status: Report was sent to members by e-mail.

01-7 PEDESTRIAN COUNTDOWN SIGNAL HEAD (Tanda)
(Experiment Agency-City of Oakland)
Status: Report was sent to members by e-mail.

01-9 IN-ROADWAY WARNING LIGHTS AT R/R CROSSINGS (Experiment requests by CPUC in cooperation Kern Co. & City of Fresno) (Meis)
Status: On November 19, 2001, the County of Kern and the City of Paramount received approval from the Federal Highway Administration to proceed with the in-roadway flashing lights experiment at highway-railroad crossings. The experimentation period is for two years.

01-12 BLINKERSTOP SIGN (Experiment request by Caltrans) (Meis)
Status: Report was sent to members by e-mail.

STATUS OF CALTRANS ACTION ON PAST ITEMS

Item 90-7 BICYCLE SIGNAL HEADS (BSH)

The Traffic Manual will be changed to reflect the BSH warrants, so that the public agencies will be able to use the Warrants to install these devices on their roadways. The Committee will be notified, when Caltrans develop the standard plans for BSH.

Item 93-18 CROSSWALKS, SEQUENTIAL LIGHTING (In-Roadway Warning Lights (IRWL) at Crosswalks)

The final text will be available during the meeting.

Item 96-7 SPEED LIMIT SIGNING

The Traffic Manual will be amended to incorporate the 65-mph speed limit signing practices.

Item 99-3 AUDIBLE PEDESTRIAN SIGNAL POLICY

Caltrans will work with the CTCDC, the California Council of the Blind (CCB) and other individuals interested in this item to resolve these issues along with Agenda Item 01-5, "Accessible pedestrian Signals" of the September 27, 2001 CTCDC meeting.

Item 01-1 U-TURN SIGNAL HEADS INDICATOR

Caltrans will develop appropriate standards to ensure visibility and make the U-turn signal head indicator an official traffic control device by inclusion in the Caltrans Traffic manual.

01-6 SUPPLEMENT SIGNS ON CHANNELIZERS

Caltrans will work with the Committee on this item.

ITEM 00-4 USE OF RAISED PAVEMENT MARKERS IN A TRANSVERSE PATTERN

CTCDC
January 31, 2002

During the September 27, 2001 meeting, Ray Mellen suggested that the item be continued to the next CTCDC meeting and Caltrans bring another draft which will be discussed during the next meeting.
The proposed draft is as follows:

Raised pavement markers may be used to supplement transverse or longitudinal pavement markings, except retroreflective raised pavement markers should not be used for right edgelines. The use of retroreflective raised pavement markers on the right edgeline may lead the motorist to believe there is another lane to the right of the markers. Raised pavement markers should not be used for right edgelines unless other available options have been considered, such a sraised and inverted profile thermoplastic stripe, ground-in or rolled-in rumble strip**. If either retroreflective or non-reflective raised markers are used on a right edgeline, an engineering study should be conducted documenting the reasons for their use.*

The existing paragraph two would be modified as follows:

~~For State highways,~~ ~~a~~Appropriate pavement delineation patterns shall be selected from ~~those alternate details showing either painted traffic lines with raised reflective pavement markers or raised pavement markers to simulate painted lines.~~ ~~See~~ Figures 6-1 through 6-12.

Raised and Inverted Profile Stripe

Ground-In or Rolled-In Rumble Strip

ITEM 01-5 ACCESSIBLE PEDESTRIAN SIGNALS

CTCDC

January 31, 2002

During the last CTCDC meeting, a motion was moved by John Fisher, seconded by Gerry Meis, to adopt the MUTCD 2000 language on Accessible Pedestrian Signals into the State Traffic Manual. Motion failed 4-4. Ray Mellen, Jim Larsen, Farhad Mansourian and Wayne Tanda voted against the motion. Members who voted against the motion were interested to see the final language of the Manual on Uniform Traffic Control Devices (MUTCD) 2000 and the suggested language from the California Counsel of the Blind which was scheduled to meet during the first week of November 2001.

Ray Mellen recommended placing this item on the January 31, 2002 CTCDC meeting agenda.

California Council of the Blind

578 B Street, Hayward, CA 94541 (800) 221-6359

Resolution 2001B-5

Accessible Pedestrian Signals Minimum Standards

WHEREAS, the California Council of the Blind (CCB) has, for many years, advocated strongly for the use of accessible pedestrian signals, and has been a leader in providing advice on the most appropriate standards to govern their use and installation; and

WHEREAS, subsequent to the adoption of accessible pedestrian signals standards in the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices 2000 millennium edition, as well as accessible pedestrian signals recommendations January 10, 2001 by the Public Rights-of-Way Access Advisory Committee (PROWAAC) of the Federal Access Board, the California Traffic Control Devices Committee is examining the extent to which changes should be made in the audible pedestrian signals guidelines contained in the California Traffic Manual; and

WHEREAS, the CCB, pursuant to Resolution 2001A-1, expressed its view that neither the FHWA standards nor the PROWAAC recommendations were wholly satisfactory, and that California should not, in adopting changes to its guidelines, accept the totality of either federal document; and

WHEREAS, the CCB, at the behest of the California Traffic Control Devices Committee (CTCDC), is providing input on proposed changes to the aforementioned manual, NOW, THEREFORE, BE IT

RESOLVED, by the California Council of the Blind, in convention assembled this 4th day of November 2001, in the city of Los Angeles, California that this organization urge the California Traffic Control Devices Committee (CTCDC) to include all of the following requirements in the California Traffic Manual:

(1) Whenever the state or a local jurisdiction is evaluating the desirability of placing accessible pedestrian signals at a specific existing signalized location, the professional to be consulted in this matter shall be an orientation and mobility instructor certified by the Academy for Certification of Vision Rehabilitation and Education Professionals (ACVREP);

(2) The state or a local jurisdiction shall not require or request that organizations who represent pedestrians who have disabilities and other community organizations be in agreement that there is a widespread community demand for the installation of an accessible pedestrian signal at a specific existing signalized location;

(3) Whenever the state or a local jurisdiction is installing a new, or upgrading an existing traffic signal, the signal shall be automatically equipped with accessible pedestrian signals;

(4) The following minimum features requirements shall apply to all accessible pedestrian signals (including overhead devices) that are installed in the state:

(a) All accessible pedestrian signals must have an auditory tone to announce the walk interval. Until ongoing research has been concluded, the auditory tones shall be limited to two options, either a Cuckoo walk sound for a crosswalk in the North-South direction and a Peep-Peep walk sound for a crosswalk in the East-West direction (the closest proximity to these compass directions) or verbal messages to communicate the walk interval that provides a clear message that the walk interval is in effect, as well as to which crossing it applies.

(b) All accessible pedestrian signals must have vibrotactile devices to indicate both that the walk interval is in effect and to which direction it applies, through the use of a vibrating directional arrow or some other means;

(c) All accessible pedestrian signals must have a pedestrian push button with a locator tone;

(d) All audible tones and locator tones must automatically adjust in volume in relation to the ambient noise level;

(e) Activation of the pedestrian traffic signal shall simultaneously activate the accessible pedestrian signal;

(f) All Pedestrian push buttons that activate an accessible pedestrian signal must be marked with a universal tactile and visual symbol that identifies that there is an accessible pedestrian signal at the crossing, and BE IT FURTHER

RESOLVED that these standards not prohibit the state or a local jurisdiction from providing additional accessible pedestrian signal features if requested by organizations who represent pedestrians who have disabilities, other community organizations, and/or individuals, and BE IT FURTHER

RESOLVED, that this organization transmit a copy of this resolution to the Federal Access Board for use in its consideration of future guidelines on this subject, and BE IT FURTHER

RESOLVED, that this organization transmit a copy of this resolution to the American Council of the Blind for consideration by the ACB Board of Directors or at the 2002 ACB Convention.

ITEM 02-1 PEDESTRIAN SIGNALS
CTCDC
January 31, 2002

9-03.20 Pedestrian Signal Faces

The Traffic Manual, Chapter 9, Section 9-03.2, to be amended as follows:

Where pedestrian movements regularly occur or are anticipated within 5 years of signal installation, signal ~~Signal~~ design must provide for or prohibit pedestrian movements. Pedestrians are better controlled by pedestrian signal faces rather than vehicular signal faces. This is because pedestrian signal faces used with appropriate pedestrian timing intervals provide adequate crossing and clearance times and in addition reduce the possibility of pedestrians unnecessarily blocking the intersection by entering a crosswalk near the end of a vehicle green interval.

Pedestrian signal faces should be installed under the conditions listed in Section 4D-3 of the MUTCD.

PROPOSAL
PEDESTRIAN COUNTDOWN SIGNAL HEAD: EXPANSION OF SAN FRANCISCO EXPERIMENT

December 2001

A. SCOPE

DESCRIPTION/LOCATIONS/NUMBER OF DEVICES

The countdown signals display the number of seconds pedestrians have to finish crossing safely. The countdown clock accompanies the familiar "walking person" (Walk) and upraised red hand (don't cross) signals. Countdown signals are primarily useful in discouraging pedestrians from starting to cross when there's insufficient time. They also give many walkers a feeling of comfort knowing they can make it across in time.

Existing Experiment

In early 2001, the CTCDC approved a pilot project by the San Francisco Department of Parking and Traffic to install pedestrian countdown signals at 14 locations. The California State Automobile Association funded the purchase, installation, and initial maintenance at 10 intersections (for crosswalks already equipped with conventional pedestrian signals). To date, countdown signals have been installed at 11 intersections, as follows:

1. Mission/Fourth Streets – all 4 crosswalks
2. Market St./Van Ness Ave. – all 4 crosswalks
3. Market/Castro/17th Sts. - 2 crosswalks on Market Street
4. 19th Ave./Sloat Blvd. – all 4 crosswalks
5. Third Street/Palou Ave. – 2 crosswalks on Third
6. Geary Blvd./Laguna St. – 2 crosswalks on Geary
7. Geary/Park Presidio Blvds. – 1 crosswalk on Park Presidio
8. Ocean/Lee Aves. – 2 crosswalks on Ocean
9. Columbus Ave./Broadway/Grant Ave. – 4 crosswalks on Columbus, Broadway
10. Polk/Grove streets – all 4 crosswalks
11. Polk/McAllister Streets – all 4 crosswalks

Based on a preliminary evaluation, the countdown signals have generally been successful.
The most important findings of our study are the following:

- The percentage of pedestrians still in the crosswalk when the signal turned red showed a statistically significant decrease after CDS installation.
- The percentage of pedestrians leaving during the Flashing Red Hand decreased slightly.
- The percentage of pedestrians running or aborting their crossings showed a statistically significant decrease.
- The percentage of observed vehicle/pedestrian conflicts decreased.

Each of these results is positive. While it is too soon to make a statistical analysis of improved pedestrian safety resulting from these behavioral results, it is reasonable to conclude that the number of pedestrian collisions is likely to decrease.

(A more detailed evaluation is attached.)

Opportunity to Expand the Experiment

Due to the energy crisis, significant grant and loan funds are available to cities to replace existing traffic and pedestrian signals with more energy-efficient LED (light emitting diode) versions. The City and County of San Francisco are committed to replacing all pedestrian signals with LED versions. This provides an opportunity to install and test LED countdown signals citywide.

San Francisco proposes to expand installation of countdown signals to all pedestrian signal locations with crosswalks at least 40 feet wide, with the possible exception of locations with relatively low pedestrian volumes (under 10 pedestrians per peak hour, even during any special event or seasonal peaks).

Roughly, 2,800 to 3,000 pedestrian signal heads would be replaced with countdown signals. This would cover nearly 600 intersections, mostly on the arterial street network.

This expansion will have a number of advantages for testing the devices. Primarily, it will allow for a test of the devices where they are so numerous that the “novelty factor” is minimized. It will provide far more data, allowing for a more robust test.

The Department of Parking and Traffic (DPT) and the City and County believes, based on the preliminary evaluation and very positive citizen response, that it would be a lost opportunity not to install these devices on a broader basis.

B. WORK PLAN

DPT will provide two further sets of evaluations. A behavioral, attitudinal, and maintenance evaluation will be conducted for the initial set of eight countdown signals included in the preliminary evaluation, approximately one year after initial installation. This will serve as the final evaluation of the initial experiment and will cover the same variables and procedures as the preliminary evaluation. A second evaluation will be a broad statistical comparison of pedestrian injury totals at a minimum of 30 intersections, comparing before and after installation, as well as comparisons to a control group of similar intersections not yet equipped with countdown signals. This second evaluation will include data collected through the first half of 2003.

Variables to be Measured/Observed:

The behavioral/attitudinal evaluation will include the following variables:

- Signal phase when pedestrians start and finish crossing
- Vehicle/pedestrian conflicts
- Pedestrians running/walking/aborting crossing
- Pedestrian satisfaction with countdown signals, generally and in comparison to conventional pedestrian signals
- Pedestrian understanding of countdown signals
- Driver red light running

This analysis will also consider maintenance history.

The later collision analysis will compare the same set of intersections on number of collisions, before and after countdown installation, for comparable periods (and traffic/pedestrian volumes). To help control for confounding by possible citywide pedestrian injury trends, the countdown intersections will also be compared to a set of similar "control" locations without countdown signals.

Education:

The countdown signals appear to be generally intuitive (more so than conventional pedestrian signals) and people readily understand them. CSAA has prepared a flyer (attached), which has been widely distributed, explaining the countdown signals. A public service announcement has also been developed. CSAA and DPT have also been working with the Police Officers Association on a pedestrian safety video and additional public service announcements that will cover countdown signals and related topics.

C. TIME PERIOD

The already approved experiment is scheduled to last an additional eight months. The final behavioral/attitudinal evaluation is expected to be completed by July 2002.

Further installation of devices citywide is expected to take approximately one year, with at least 50 intersections likely to have the devices installed by late spring 2002. Collision analysis will include data collected through the first half of 2003, with preliminary evaluation expected by July 2003.

The impact of the devices will be monitored. If there are problems with the devices, the signals will be removed within three months of completion of the experiment. If the experiment directly or indirectly creates significant safety hazards, it will be terminated promptly. The Office of Traffic Safety may also terminate approval of the experimentation at any time if there is an indication of hazards. The City would be responsible for liability on state highways for injuries and damages directly related to the countdown signals, except for the CSAA-funded locations during the "warranty period" when (per the MOU) the contractor should be responsible.

This proposal is being submitted this 21th day of December 2001.

CITY OF SAN FRANCISCO
By

sign name

print name and title

Department of Public Works
Engineering Division

November 30, 2001

Mr. Devinder Singh
Executive Secretary for the CTCDC – MS 36
California Department of Transportation
P.O. Box 94284
Sacramento, CA 94274-0001

PROPOSAL FOR EXPERIMENTAL USE OF A NON-STANDARD TRAFFIC CONTROL DEVICE -- PEDESTRIAN COUNTDOWN SIGNAL

The City of Berkeley requests permission to conduct an experiment using pedestrian countdown signals as a non-standard traffic control device to determine their effectiveness in improving pedestrian crossing safety.

1. PROBLEM STATEMENT

Berkeley has more than two times the rate of pedestrian injury compared with the state of California. In comparison to forty-four cities of a similar size in the State of California in 1999, Berkeley ranks number one in pedestrian and bicyclist injury and death.

California Office of Traffic Safety (OTS) rankings for 1999 indicate:

Ranking Category	Per 1000 Vehicle Miles Traveled (VMT)		Per 1000 Population	
Collisions	Statewide	Population Group	Statewide	**Population Group**
Total Fatal and Injury Collisions	33	1/45	25	2/45
Alcohol-Involved Collisions	70	5/45	58	6/45
Speed-Related Collisions	65	5/45	74	7/45
Victims Killed & Injured				
Pedestrians	25	**1/45**	9	1/45
Pedestrians<15	156	19/45	160	22/45
Bicyclists	14	1/45	8	1/45
Bicyclists<15	180	12/45	216	21/45
DUI Arrests	# of Arrest 141 0.21 %		% of licensed population N/A	

2. PROPOSED SOLUTION

The City of Berkeley wishes to participate in the experimentation of the Pedestrian Countdown Signals at up to sixteen intersections. 7 out of the sixteen intersections are on

Ashby Avenue (SR 13) or San Pablo Avenue (SR 123). One of the main reasons of seeking CTCDC's permission is to eventually gain Caltrans approval in experimenting the pedestrian countdown signals on State Highways in Berkeley.

3. OBJECTIVE

The objective of the test will be to determine the usage and effectiveness of the pedestrian countdown signals in improving pedestrian safety from the point of view of pedestrians, including the disabled community.

4. EXPERIMENT SCHEDULE

- Pre-Installation Evaluation……..January to March 2002
- Installation……..March to June 2002
- Experimental Period……March 2002 to June 2003
- Evaluation of Results……..October 2003

Thank you for your kind consideration of this request. The City of Berkeley is looking forward to receiving a positive response from the Committee. Please feel free to call me at (510) 981-6403 if you have questions or comments.

Sincerely,

Reh-Lin N. Chen

Reh-Lin N. Chen
Acting Supervising Traffic Engineer

Enclosure

cc: Weldon Rucker, City Manager
Rene Cardinaux, Director of Public Works
Jeffrey L. Egeberg, Manager of Engineering

PROPOSAL TO THE CALIFORNIA TRAFFIC CONTROL DEVICES COMMITTEE FOR EXPERIMENTATION OF A NEW TRAFFIC CONTROL DEVICE:
PEDESTRIAN COUNTDOWN SIGNALS

SCOPE

The City of Berkeley proposes to experiment Pedestrian Countdown Signals to improve pedestrian safety.

According to a City of Monterey evaluation report, countdown signals enhance pedestrians' understanding of conventional pedestrian signals and make pedestrian feel more comfortable in crossing wide intersections. In Boulder, Colorado, over eighty percent of pedestrians thought the countdown display was useful. Berkeley is hopeful that countdown signals will be valuable in reducing pedestrian injuries citywide.

According to the March 2000 Berkeley Bicycle and Pedestrian Study (BAPS), sixteen signalized intersections as well as 6 unsignalized intersections were identified as high-collision intersections for both pedestrians and bicyclists. Therefore, Berkeley tentatively selected the following sixteen signalized intersections for the experiment of countdown signals:

1) Shattuck/University
2) Durant/Telegraph
3) Ashby (SR 13)/Sacramento
4) Gilman/San Pablo (SR 123)
5) Oxford/University
6) Allston/Shattuck
7) Ashby (SR 13)/Martin Luther King Jr. Way
8) San Pablo (SR 123)/University
9) Ashby (SR 13)/San Pablo (SR 123)
10) Hearst/Oxford
11) Milvia/University
12) Martin Luther King Jr. Way/University
13) Allston/ Martin Luther King Jr. Way
14) Ashby (SR 13)/Shattuck
15) Ashby (SR 13)/Telegraph
16) Euclid/Hearst

WORK PLAN

Installation

The pedestrian countdown signals will be installed as an integral part of the existing traffic signals. All existing, conventional pedestrian signals at the sixteen intersections will be replaced with pedestrian countdown signals.

Evaluation

Effectiveness and acceptance will be measured in accordance with the time period and evaluation procedures shown below.

Time Period

The schedule for testing is as follows:

- Pre-Installation Evaluation……..January to March 2002
- Installation……...March to June 2002
- Experimental Period……March 2002 to June 2003
- Evaluation of Results……...October 2003

EVALUATION PROCEDURES

The City of Berkeley requests that the Committee approve the preliminary evaluation plan outlined below. Other criteria and procedures may evolve during the evaluation period. These additional ways of evaluating the use of countdown signals and any changes in procedures added to the assessment criteria will be discussed in the scheduled reports submitted to the project sponsor and the Committee.

1) Installation Documentation – to be prepared by the City of Berkeley personnel.

2) Maintenance Recording – to be performed throughout the life of the experimentation period. A separate maintenance log sheet will be created for each site. Periodic inspections will be performed and logged by City of Berkeley personnel.

3) Accident data will be monitored and analyzed by the City of Berkeley personnel.

4) Observations will be conducted to determine the effectiveness of the operation. Videotapes and digitized photographs may be used to help document the operation and for reporting to the Committee, Caltrans, and other interested public agencies.

Measures of effectiveness and acceptance during the before and after the testing period may include, but are not limited to, the following actions:

- Compare the total number of pedestrian accidents or the pedestrian accident rates
- Evaluate pedestrian/vehicle conflicts
- Evaluate pedestrian behaviors at the crossings
- Compare walking speeds
- Compare the number complying and percentage of people complying with the signal

The City of Berkeley will work with a human factor/highway safety consultant to help assess acceptance and effectiveness. The consultant has considerable experience with the Manual on Uniform Traffic Control Devices (MUTCD) and has served as an alternate member to the National Committee on Uniform Traffic Control Devices.

Given a relatively high number of testing sites, the City staff may only conduct the before and after studies at about 6 intersections to maintain high quality of studies throughout the project.

ADMINISTRATION

Sponsoring Agency: City of Berkeley

Contact Information: Reh-Lin N. Chen
Acting Supervising Traffic Engineer
City of Berkeley
Tel: (510) 981-6403
Fax:(510) 981-6390
E-mail: RChen@ci.berkeley.ca.us

Manufactures: Vendor(s) to be determined by February, 2002

Installations: Traffic Signal Shop, City of Berkeley